Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (New) A method of analyzing noise content in a digital image, the method comprising:

identifying regions of approximately constant pixel value within the digital image;

selecting a predetermined number of said identified regions based on pixel value variances within each said identified region;

analyzing said selected regions to generate a mathematical model of noise present in the digital image.

7. (New) The method of claim 6, wherein said identifying regions of approximately constant pixel value within the digital image comprises:

defining a plurality of regions in the digital image;

discarding any of said defined regions in which pixel values are saturated or clipped to generate a set of remaining regions;

analyzing said remaining regions to determine variation among pixel values within each remaining region; and

identifying said remaining regions having lower variation among pixel value.

8. (New) The method of claim 7, wherein said defining a plurality of regions comprises allowing a user to select said regions.

9. (New) The method of claim 7, wherein said defining a plurality of regions comprises:

setting a region size for each of said plurality of regions; and

using a random sampling pattern such that said plurality of regions include approximately all of the pixels in the digital image.

10. (New) The method of claim 9, wherein said region size for each of said plurality of regions is about 16 to 32 pixels square.

11. (New) The method of claim 7, wherein said discarding any of said defined regions in which pixel values are saturated or clipped comprises:

computing the average and standard deviation of all pixels in all samples; and

discarding those regions having an average value that is greater than one standard deviation from the overall average.

12. (New) The method of claim 6, wherein said identifying regions of approximately constant pixel value comprises allowing a user to select said regions.

13. (New) The method of claim 6, wherein said predetermined number of identified regions comprises about 5 to 10 regions.

14. (New) The method of claim 6, wherein said predetermined number of identified regions comprises about 7 regions.

15. (New) The method of claim 6, wherein said analyzing said selected regions to generate a mathematical model of the noise present in the digital image comprises:

processing each selected region to remove a mean pixel value from each pixel in the selected region and obtain an approximation of the noise in each selected region;

analyzing the power spectral density (PSD) of the noise in said selected regions; and

generating a parametric model of the noise present in the digital image based on said PSD of the noise in said selected regions.

16. (New) The method of claim 15, wherein said analyzing the power spectral density of the noise in said selected regions comprises:

applying an auto correlation function (ACF) model to the noise present in each selected region; and

applying a discrete Fourier transform to the ACF model for each selected region to obtain a PSD for the noise in each selected region.

17. (New) The method of claim 16, wherein said generating a parametric model of the noise present in the digital image based on said PSD for each selected region comprises:

generating a periodogram from said PSDs for each selected region by taking the squared magnitude of each PSD for each selected region; and

combining the periodogram with a least-squares linear fit to obtain the best fit PSD among each of the PSDs for each selected region.

18. (New) The method of claim 6, wherein the pixel value is a vector that includes multiple values or channels and each channel is analyzed independently.

19. (New) The method of claim 18, further comprising using a decorrelating transform to uncorrelate any channels that are initially correlated.

20. (New) The method of claim 6, wherein the pixel value is a vector that includes multiple values or channels and each channel is analyzed independently and simultaneously.

21. (New) The method of claim 6, wherein the digital image comprises a plurality of frames and each frame is analyzed independently and simultaneously.

22. (New) The method of claim 6, further comprising performing a homomorphic transformation on each pixel value prior to the analysis and a reverse transformation following the analysis.

23. (New) A computer readable medium containing computer executable instructions for analyzing noise content in a digital image, which, when operating in a processor cause the processor to perform the functions of:

identifying regions of approximately constant pixel value within the digital image;

selecting a predetermined number of said identified regions based on pixel value variances within each said identified region;

analyzing said selected regions to generate a mathematical model of noise present in the digital image.

24. (New) The computer readable medium of claim 23, wherein said identifying regions of approximately constant pixel value within the digital image comprises:

defining a plurality of regions in the digital image;

discarding any of said defined regions in which pixel values are saturated or clipped to generate a set of remaining regions;

analyzing said remaining regions to determine variation among pixel value within each remaining region; and

identifying said remaining regions having lower variation among pixel value.

25. (New) The computer readable medium of claim 24, wherein said defining a plurality of regions comprises:

setting a region size of about 16 to 32 pixels square for each of said plurality of regions; and

using a random sampling pattern such that said plurality of regions include approximately all of the pixels of the digital image.

26. (New) The computer readable medium of claim 24, wherein said discarding any of said defined regions in which pixel values are saturated or clipped comprises:

computing the average and standard deviation of all pixels in all samples; and

discarding those regions having an average value that is greater than one standard deviation from the overall average.

27. (New) The computer readable medium of claim 23, wherein said predetermined number of identified regions comprises about 5 to 10 regions.

28. (New) The computer readable medium of claim 23, wherein said analyzing said selected regions to generate a mathematical model of the noise present in the digital image comprises:

processing each selected region to remove a menu pixel value from each of he pixel in the selected region and obtain an approximation of the noise in each selected region;

analyzing the power spectral density (PSD) of the noise in said selected regions; and

generating a parametric model of the noise present in the digital image based on said PSD of the noise in said selected regions.

29. (New) The computer readable medium of claim 28, wherein said analyzing the power spectral density of the noise in said selected regions comprises:

applying an auto correlation function (ACF) model to the noise present in each selected region; and

applying a discrete Fourier transform to the ACF model for each selected region to obtain a PSD for the noise in each selected region.

30. (New) The computer readable medium of claim 29, wherein said generating a parametric model of the noise present in the digital image based on said PSD for each selected region comprises:

generating a periodogram from said PSDs for each selected region by taking the squared magnitude of each PSD for each selected region; and

combining the periodogram with a least-squares linear fit to obtain the best fit PSD among each of the PSDs for each selected region.

31. (New) The computer readable medium of claim 23, wherein the pixel value is a vector that includes multiple values or channels and each channel is analyzed independently.

32. (New) A software program product for use with a processor, the software program product comprising processor readable program code for analyzing noise content in a digital image, wherein when said processor readable program code is executed in a processor, said processor readable program code causes said processor to perform the functions of:

identifying regions of approximately constant pixel value within the digital image;

selecting a predetermined number of said identified regions based on pixel value variances within each said identified region;

analyzing said selected regions to generate a mathematical model of noise present in the digital image.

33. (New) The software program product of claim 32, wherein said identifying regions of approximately constant pixel value within the digital image comprises:

defining a plurality of regions in the digital image;

discarding any of said defined regions in which pixel values are saturated or clipped to generate a set of remaining regions;

analyzing said remaining regions to determine variation among pixel value within each remaining region; and

identifying said remaining regions having lower variation among pixel value.

34. (New) The software program product of claim 33, wherein said defining a plurality of regions comprises:

setting a region size for each of said plurality of regions; and

using a random sampling pattern such that said plurality of regions include approximately all of the pixels in the digital image.

35. (New) The software program product of claim 34, wherein said region size for each of said plurality of regions is about 16 to 32 pixels square.

36. (New) The software program product of claim 33, wherein said discarding any of said defined regions in which pixel values are saturated or clipped comprises:

computing the average and standard deviation of all pixels in all samples; and

discarding those regions having an average value that is greater than one standard deviation from the overall average.

37. (New) The software program product of claim 32, wherein said identifying regions of approximately constant pixel value comprises allowing a user to select said regions.

38. (New) The software program product of claim 32, wherein said predetermined number of identified regions comprises about 5 to 10 regions.

39. (New) The software program product of claim 32, wherein said predetermined number of identified regions comprises about 7 regions.

40. (New) The software program product of claim 32, wherein said analyzing said selected regions to generate a mathematical model of the noise present in the digital image comprises:

processing each selected region to remove a menu pixel value from each pixel in the selected region and obtain an approximation of the noise in each selected region;

analyzing the power spectral density (PSD) of the noise in said selected regions; and

generating a parametric model of the noise present in the digital image based on said PSD of the noise in said selected regions.

41. (New) The software program product of claim 40, wherein said analyzing the power spectral density of the noise in said selected regions comprises:

applying an auto correlation function (ACF) model to the noise present in each selected region; and

applying a discrete Fourier transform to the ACF model for each selected region to obtain a PSD for the noise in each selected region.

42. (New) The software program product of claim 40, wherein said analyzing the power spectral density of the noise in said selected regions comprises:

applying an auto correlation function (ACF) model to the noise present in each selected region; and

applying a discrete Fourier transform to the ACF model for each selected region to obtain a PSD for the noise in each selected region.

43. (New) The software program product of claim 41, wherein said generating a parametric model of the noise present in the digital image based on said PSD for each selected region comprises:

generating a periodogram from said PSDs for each selected region by taking the squared magnitude of each PSD for each selected region; and

combining the periodogram with a least-squares linear fit to obtain the best fit PSD among each of the PSDs for each selected region. (New) The software program product of claim 32, wherein the digital image includes multiple channels and each channel is analyzed independently.

44. (New) The software program product of claim 32, wherein the pixel value is a vector that includes multiple values or channels and each channel is analyzed independently.

45. (New) The software program product of claim 44, further comprising using a decorrelating transform to uncorrelate any channels that are initially correlated.

46. (New) The software program product of claim 32, wherein the pixel value is a vector that includes multiple values or channels and each channel is analyzed independently and simultaneously.

47. (New) The software program product of claim 32, further comprising:

performing a homomorphic transformation on each pixel value prior to the analysis and a reverse transformation following the analysis.

48. (New) A method of analyzing noise content in a digital image, the method comprising:

identifying regions of approximately constant pixel value within the digital image, wherein said identifying comprises:

defining a plurality of regions in the digital image;

discarding any of said defined regions in which pixel values are saturated or clipped to generate a set of remaining regions;

analyzing said remaining regions to determine variation among pixel value within each remaining region; and

identifying said remaining regions having lower variation among pixel value;

selecting a predetermined number of said identified regions based on pixel value variances within each said identified region;

analyzing said selected regions to generate a mathematical model of noise present in the digital image.

49. (New) The method of claim 48, wherein said defining a plurality of regions comprises:

setting a region size for each of said plurality of regions; and

using a random sampling pattern such that said plurality of regions include approximately all of the pixels in the digital image.

50. (New) The method of claim 48, wherein said predetermined number of identified regions comprises about 5 to 10 regions.

51. (New) The method of claim 48, wherein said analyzing said selected regions to generate a mathematical model of the noise present in the digital image comprises:

processing each selected region to remove a mean pixel value for the region from each pixel in the selected region and obtain an approximation of the noise in each selected region;

analyzing the power spectral density (PSD) of the noise in said selected regions; and

generating a parametric model of the noise present in the digital image based on said PSD of the noise in said selected regions.

52. (New) The method of claim 51, wherein said analyzing the power spectral density of the noise in said selected regions comprises:

applying an auto correlation function (ACF) model to the noise present in each selected region; and

applying a discrete Fourier transform to the ACF model for each selected region to obtain a PSD for the noise in each selected region.

53. (New) The method of claim 52, wherein said generating a parametric model of the noise present in the digital image based on said PSD for each selected region comprises:

generating a periodogram from said PSDs for each selected region by taking the squared magnitude of each PSD for each selected region; and

combining the periodogram with a least-squares linear fit to obtain the best fit PSD among each of the PSDs for each selected region.